

TABLE 3.—Maximum free-air wind velocities (meters per second) for different sections of the United States based on pilot-balloon observations during April 1938

Section	Surface to 2,500 meters (m. s. l.)					Between 2,500 and 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum ve- locity	Direction	Altitude (m), m. s. l.	Date	Station	Maximum ve- locity	Direction	Altitude (m), m. s. l.	Date	Station	Maximum ve- locity	Direction	Altitude (m), m. s. l.	Date	Station
Northeast <sup>1</sup>	42.9	SW	1,740	3	Pittsburgh	44.6	WSW	3,420	1	Albany	40.8	WNW	7,560	7	Albany.
East-Central <sup>2</sup>	36.0	NW	1,410	10	Richmond	38.2	W	5,000	1	Nashville	44.6	WSW	5,500	1	Nashville.
Southeast <sup>3</sup>	36.0	S	1,580	8	Tampa	38.4	W	4,980	3	Charleston	42.0	W	6,240	4	Charleston.
North-Central <sup>4</sup>	35.3	WNW	930	20	Bismark	40.6	NNW	4,430	22	Sault Ste. Marie	43.7	W	6,590	6	Sault Ste. Marie.
Central <sup>5</sup>	36.3	WNW	1,540	3	Chicago	36.0	WNW	4,120	4	Indianapolis	42.0	NW	8,550	22	Moline.
South-Central <sup>6</sup>	39.0	WNW	990	8	Houston	39.6	W	4,150	2	Vicksburg	33.6	WNW	5,890	3	Amarillo.
Northwest <sup>7</sup>	26.2	W	2,310	18	Spokane	33.9	WSW	3,170	18	Spokane	37.8	NW	8,820	6	Pendleton.
West-Central <sup>8</sup>	46.6	S	2,360	25	Rock Springs	43.4	S	2,510	25	Rock Springs	56.0	NNW	8,780	6	Modena.
Southwest <sup>9</sup>	32.1	W	2,370	15	El Paso	41.6	SSW	5,000	26	Albuquerque	61.7	NNW	8,860	6	Las Vegas.

<sup>1</sup> Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.

<sup>2</sup> Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.

<sup>3</sup> South Carolina, Georgia, Florida, and Alabama.

<sup>4</sup> Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.

<sup>5</sup> Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.

<sup>6</sup> Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.

<sup>7</sup> Montana, Idaho, Washington, and Oregon.

<sup>8</sup> Wyoming, Colorado, Utah, northern Nevada, and northern California.

<sup>9</sup> Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

## RIVERS AND FLOODS

[River and Flood Division, MERRILL BERNARD in charge]

By BENNETT SWENSON

Following a relatively wet March in most sections of the country from the Appalachians westward, scattered sections received excessive rainfall during April. The heaviest amounts occurred in the central portions of Mississippi, Alabama, and Georgia, over the middle Missouri and upper Mississippi Basins, and in portions of Texas and Louisiana.

Moderately heavy rains over portions of the Mississippi-Alabama-Georgia area on April 1-2, were followed by heavy rains on April 6-8. The excessive rainfall resulted in severe floods, particularly in the Alabama, Tombigbee, Pascagoula, and Pearl River systems.

The official in charge, Montgomery, Ala., reports on the flood in the Alabama River as follows:

On the morning of April 7 moderate rains were reported in the upper watersheds and moderately heavy to heavy rains below Gadsden, Ala., to Montgomery.

Very little rain fell during the day of the 7th, but during the night and on the morning of the 8th, very heavy downpours occurred. The averages for 2 days were approximately 5.00 inches, fairly evenly distributed in the drainage basin above Gadsden, and 7.90 below, with the mean of all stations equal to 6.59 inches. Several stations in the only really flashy portion of the Coosa River basin reported torrential rainfall, 11.79 inches at Clanton; 9.65 at Leeds; and 9.37 at Goodwater. Also reported were 8.81 inches at Union Springs and 12.69 at Selma.

Critical situations had developed over night at Rome, Ga., and Wetumpka, Ala., with 7 a. m. stages on the 8th of 25.0 feet at Rome and 53.7 feet at Wetumpka. It is believed that the operation, by the Alabama Power Co., of its dams reduced somewhat the crest at Montgomery.

Due either to a change in channel conditions or to unusual behavior of backwater, the crest discharge of approximately 210,000 second-feet at Montgomery gave only a 54.2-foot stage in this flood against 56.9 for identically the same peak discharge in the 1929 flood.

Heavy rainfall occurred over the Black Warrior and Tombigbee River basins at several periods during the latter half of March and the first 2 days of April and was followed by unusually heavy rains on April 6-9. The rainfall in the latter period ranged from 5 inches in Black Warrior basin to 13 inches or more in the Tombigbee watershed south of Demopolis, Ala.

The Black Warrior reached a stage of 63.0 feet at Tuscaloosa, Ala., on April 8. The Tombigbee River crested at all of the locks south of Demopolis 4 days before it

crested at Demopolis. This is not the usual procedure as floods to the south of Demopolis, in large rises, come from the Black Warrior and Little Tombigbee Rivers through Demopolis. At locks 1 and 2 the excessive rainfall caused stages that were unprecedented for rainfall in the lower Tombigbee.

The following report on the floods in the Pascagoula and Pearl Rivers was prepared by the official in charge, Meridian, Miss.:

Heavy rains were reported at intervals over the entire Meridian district during the latter part of March. Pearl River was above the flood stage at Jackson, Miss., and Pearl River, La., at the beginning of April. Heavy rains were again reported over most of the district on April 1 and 2, again during the 6th to 8th, and a period of moderate to heavy rains from the 17th to the 20th. The rains were more or less spotted as shown by the following table of monthly amounts of rainfall for April at the various river and rainfall stations:

Station	Rainfall (Inches)	Station	Rainfall (Inches)
Bay Springs, Miss.	12.63	Jackson, Miss.	10.13
Collins, Miss.	12.72	Leakesville, Miss.	4.44
Columbia, Miss.	9.93	Meridian, Miss.	16.44
Dlo, Miss.	15.06	Merrill, Miss.	5.16
Edinburg, Miss.	9.00	Monticello, Miss.	14.21
Enterprise, Miss.	16.98	Pearl River, La.	3.92
Franklinton, La.	6.30	Pelahatchee, Miss.	9.56
Hattiesburg, Miss.	7.06	Philadelphia, Miss.	10.20
Hickory, Miss.	18.08	Shubuta, Miss.	18.70

The total monthly precipitation at Meridian for April, 16.44 inches, was 11.66 inches above the normal. It is the greatest amount of precipitation for April in some 50 years of record and has been equalled or exceeded twice, namely, 18.77 inches in January 1937, and 20.06 inches in June 1900.

For the period April 6-8, the 24-hour amounts of rainfall, ending at 6:10 a. m., C. S. T., at Hickory, Meridian, and Enterprise, were as follows:

Date	Meridian	Hickory	Enterprise
6-----	0.67	1.07	1.10
7-----	2.99	3.36	3.64
8-----	5.76	3.77	6.20
Total-----	9.42	8.20	10.94

The heavy rains during this period caused considerable flooding in the vicinity of Meridian and Toomsaba, about 12 miles north-east of Meridian. Sowashee Creek overflowed in the southern and western sections of Meridian, making it necessary for the Red Cross and the Meridian Police Department to rescue some 250 people from flooded homes.

The crest stage at Enterprise, Miss., 36.0 feet, was within 0.2 foot of the highest stage of record at this place. The town of Bucatunna, below Shubuta, was practically isolated by flood waters for several days. Old residents near the confluence of the Leaf and Chickasawhay stated that in places, this was the highest water in their section, although no gage records were broken at Shubuta, Merrill, or Hattiesburg.

The crest stage at Monticello, 27.6 feet on the 8th, was the highest of record, the previous highest being 26.3 feet on March 16, 1935. The crest at Columbia, 26.5 feet on the 9th, is equivalent to 27.4 feet on the old gage, and was probably near the highest water of record.

The crest stages at selected stations in the Alabama, Tombigbee, Pearl, and Pascagoula River basins, in comparison with the previous highest stages, are shown in the table below:

River	Station	Flood stage	April 1938 stage	Previous highest	
				From gage readings	Prior to gage records <sup>1</sup>
Coosa.....	Wetumpka, Ala.....	45	57.9	55.6 1919	61.7 1886
Cahaba.....	Centerville, Ala.....	23	36.6	35.3 1936	37.8 1916
Alabama.....	Montgomery, Ala.....	35	54.2	57.1 1919	59.7 1886
Do.....	Selma, Ala.....	45	55.3	56.0 1929	57.0 1886
Do.....	Millers Ferry, Ala.....	40	56.6	51.8 1933	56.8 1929
Black Warrior.....	Tuscaloosa, Ala.....	46	63.0	68.6 1900	-----
Tombigbee.....	Lock No. 4.....	39	62.6	73.1 1900	-----
Do.....	Lock No. 3.....	33	61.2	62.9 1916	66.1 1900
Do.....	Lock No. 2.....	46	64.1	64.8 1916	65.9 1874
Do.....	Lock No. 1.....	31	46.0	50.6 1900	51.8 1874
Chickasawhay.....	Enterprise, Miss.....	20	36.0	36.2 1919	37.2 1900
Do.....	Shubuta, Miss.....	26	41.2	44.3 1919	45.0 1900
Pascagoula.....	Merrill, Miss.....	22	29.7	31.0 1916	28.5 1900
Pearl.....	Edinburg, Miss.....	20	24.6	26.2 1935	29.0 1902
Do.....	Jackson, Miss.....	18	32.1	37.2 1902	-----
Do.....	Monticello, Miss.....	15	27.6	26.3 1935	31.0 1902
Do.....	Pearl River, La.....	12	17.0	19.7 1900	20.2 1874

<sup>1</sup> Obtained from high-water marks.

The loss and damage caused by the floods in the Southeastern States during April, by drainage basins, is as follows: Altamaha, \$28,000; Apalachicola, \$16,000; Alabama, \$900,000; Black Warrior-Tombigbee (March and April), \$92,000; and Pearl and Pascagoula (March and April) more than \$500,000.

**Upper Mississippi Basin.**—The Illinois River was bankful, or over, during a long period, beginning March 24, and ending May 4. The highest stages were reached in April. Although the crest was 5.2 feet above flood stage at Havana and 7.8 feet above at Beardstown, Ill., there was no damage of consequence.

The upper Mississippi slightly exceeded flood stage at Hannibal, Mo., and Quincy and Grafton, Ill., from April 8–13, but resulted in no appreciable damage.

**Ohio River Basin.**—A prolonged period of high water occurred in the Wabash River system, the flooding, in portions, continuing from March 6 to April 23.

Concerning this flood the official in charge, Indianapolis, Ind., reports as follows:

Frequent and heavy rains during much of the month of March and first part of April, caused a succession of rises in the upper valleys, and a rather prolonged period of flooding in the lower valleys, particularly in the Wabash and West Fork of White, as well as in the main stream of the White. The East Fork of White was not so much affected, although moderate flooding occurred at Seymour, Ind., below the junction of the several converging streams of the upper basin that form the White at Columbus, Ind.

Stages were not high enough to cause much damage to tangible property, comparatively speaking; nor was there any great loss in movable property. The chief loss and damage was to prospective crops, chiefly winter wheat and clovers, and in the lower stretches particularly, a considerable part of the overflowed area was submerged long enough to kill entirely the prospective crop. The total loss is estimated at more than \$900,000.

Light floods occurred elsewhere in the Ohio Basin, principally in the Muskingum, Scioto, Miami, Tennessee, and the lower Ohio from Mount Vernon, Ind., to Cairo, Ill. In no case was the overflow serious, the only appreciable damage reported was \$23,500 in the Muskingum Valley and \$3,200 in the Scioto.

**Arkansas, White and Red Basins.**—The floods in these basins were largely a continuation of overflows beginning the latter part of March, followed by two separate rises caused by rain periods on April 5–8 and again on the 15–17th.

The overflows were not serious; the only appreciable damage occurring in the lower Arkansas River estimated at about \$100,000. Considerable caving of the river bank has occurred during the spring months at Colfax, La., on the Red River, encroaching on the town, but any losses sustained cannot be closely approximated.

**Lower Mississippi Basin.**—An increased flow in the upper Mississippi, together with flood stages in the lower Ohio, brought the stage at New Madrid, Mo., to about a foot above flood stage on the 5th and again on the 17th. The high stages in the Mississippi below Cairo, augmented by frequent rains resulted in stages slightly exceeding flood stage in the extreme lower Mississippi and in the Atchafalaya. Little damage resulted from the high water.

**West Gulf of Mexico drainage.**—Floods occurred during the month principally in the Trinity, Guadalupe, and Colorado Rivers. The flood in the Trinity began in March, being prolonged due to additional rains in April. Local thundershowers on April 23–25 caused sharp rises in the Colorado and Guadalupe Rivers. However, no great overflow resulted, except in the Trinity River where the loss in the lower portion was estimated to be more than \$250,000.

**Colorado Basin.**—Melting snow, caused by relatively high temperature and light rains, produced a slight overflow in the Gunnison River and its tributaries in Colorado beginning about April 23. The damage from the high water was not great, the loss from reports available amounting to about \$12,000.

**Pacific slope drainage.**—The only river gaging stations to report flood stages during the month were Kamiah, Idaho, on the Clearwater River, and Jefferson, Oreg., on the Santiam River. The official in charge, Portland, Oreg., reports as follows on the flood in the Columbia Basin:

Several days of moderate temperatures, accompanied by heavy rain near the headwaters of a few of the tributaries of the upper Columbia, brought out sufficient amounts of snow in the Okanogan, Couer d'Alene and Clearwater Rivers to cause some unusually high water in those streams. There was a considerable melting of snow at low elevations in the drainage basins of all of the tributaries south of the International Boundary, also in the Kootenai.

At the close of the month the high stages in many of the tributaries above the Willamette River had exceeded the crests for the spring and summer of 1937, and by May 3, the Columbia was discharging considerably more water at Celilo, Oreg., than at any time last year. Flood stages occurred at but two widely separated reporting stations during April—Kamiah, Idaho, on the Clearwater and Jefferson, Oreg., on the Santiam. No damage occurred near either of these stations.

Table of flood stages during April 1938

[All dates in April unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Erie					
	<i>Feet</i>			<i>Feet</i>	
St. Marys: Decatur, Ind. ....	13	{ Mar. 31	4	18.0	
St. Joseph: .....		8	13	19.1	10
Fort Wayne, Ind. ....	12	{ 1	1	12.2	
Montpelier, Ohio. ....	10	{ 9	12	14.5	10
Maumee: .....		2	2	10.2	
Fort Wayne, Ind. ....	15	{ 9	12	11.1	11
Napoleon, Ohio. ....	10	{ 9	13	16.5	10
Sandusky: Upper Sandusky, Ohio. ....	13	{ 9	12	11.8	11
		9	9	13.1	9
ATLANTIC SLOPE DRAINAGE					
Roanoke: Williamston, N. C. ....	10	14	14	10.0	14
Tar: Greenville, N. C. ....	13	13	15	13.1	13
Neuse: Goldsboro, N. C. ....	14	12	14	14.5	13
Cape Fear: Lock No. 2, Elizabethtown, N. C. ....	20	10	12	23.8	11
Peedee: Mars Bluff Bridge, S. C. ....	17	11	14	17.6	13
Black: Kingstree, S. C. ....	12	14	14	12.1	13
Saluda: Chappells, S. C. ....	15	3	3	16.3	3
Santee: .....					
Rimini, S. C. ....	12	{ 6	17	13.9	12, 13
		21	24	12.6	22
Ferguson, S. C. ....	12	{ 7	19	13.4	14, 15
		23	25	12.2	24
Savannah: .....					
Butler Creek, Ga. ....	21	{ 2	4	23.3	3
Clyo, Ga. ....	13	{ 8	10	22.7	9
Ogeechee: .....		9	22	17.8	16
Midville, Ga. ....	6	9	14	7.0	13
Dover, Ga. ....	7	11	20	9.0	16
Ocmulgee: .....					
Macon, Ga. ....	18	{ 2	4	19.8	3
		7	10	20.6	7
Hawkinsville, Ga. ....	25	10	13	26.0	11, 12
Abbeville, Ga. ....	11	8	19	15.8	13, 14
Lumber City, Ga. ....	15	15	20	16.8	17
Oconee: Milledgeville, Ga. ....	22	{ 2	4	20.2	3
		7	10	25.9	7
Altamaha: .....					
Charlotte, Ga. ....	12	10	24	20.8	17
Everett City, Ga. ....	10	17	28	12.6	21, 22
EAST GULF OF MEXICO DRAINAGE					
Chattahoochee: .....					
West Point, Ga. ....	19	8	9	20.2	9
Eufaula, Ala. ....	40	7	12	43.0	10
Columbia, Ala. ....	42	9	12	44.5	11
Flint: .....					
Montezuma, Ga. ....	20	10	12	21.0	11
Albany, Ga. ....	20	9	17	20.4	14
Bainbridge, Ga. ....	25	14	18	26.3	16
Apalachicola: .....					
River Junction, Fla. ....	20	10	15	22.8	13
Blountstown, Fla. ....	15	4	28	22.2	14
Conecuh: .....					
River Falls, Ala. ....	35	10	10	37.9	10
Brewton, Ala. ....	17	13	14	17.5	13
Oostanaula: .....					
Resaca, Ga. ....	22	8	12	31.5	9
Rome, Ga. ....	25	8	14	33.8	10
Etowah: .....					
Canton, Ga. ....	17	8	9	22.4	8
Cartersville, Ga. ....	18	{ 1	3	21.3	2
		7	10	29.2	8
Coosa: .....					
Mayos Bar Lock, Ga. ....	28	8	14	36.9	10
Gadsden, Ala. ....	20	8	18	26.9	14
Lock No. 4, Lincoln, Ala. ....	17	7	18	24.5	9
Childersburg, Ala. ....	20	7	12	29.9	9
Wetumpka, Ala. ....	45	7	13	57.9	8
Tallapoosa: Milstead, Ala. ....	40	9	9	40.0	9
Cahaba: Centerville, Ala. ....	23	{ 1	3	27.8	2
		7	11	36.6	8
Alabama: .....					
Montgomery, Ala. ....	35	8	18	54.2	11
Selma, Ala. ....	45	7	18	55.3	12
Millers Ferry, Ala. ....	40	1	24	56.6	14
Black Warrior: Lock No. 10, Tuscaloosa, Ala. ....	46	{ 1	4	54.9	2
		7	12	63.0	8
Tombigbee: .....					
Gainesville, Ala. ....	36	Mar. 24	21	47.1	10
Lock No. 4, Demopolis, Ala. ....	39	Mar. 20	29	62.6	14
Lock No. 3, Ala. ....	33	Mar. 15	May 1	61.2	9
Lock No. 2, Ala. ....	46	Mar. 21	30	64.1	9
Lock No. 1, Ala. ....	31	Mar. 20	May 3	46.0	10
Leaf: Hattiesburg, Miss. ....	18	8	12	23.5	9

See footnotes at end of table.

Table of flood stages during April 1938—Continued

[All dates in April unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
EAST GULF OF MEXICO DRAINAGE—CON.					
Chickasawhay:	<i>Feet</i>			<i>Feet</i>	
Enterprise, Miss. ....	20	{ 1 6 19	5 11 21	28.0 36.0 23.8	4 8 20
Shubuta, Miss. ....	26	{ 4 22	15 24	41.2 27.1	10 23
Pascagoula: Merrill, Miss. ....	22	8	18	29.7	13
Bogue Chitto: Franklinton, La. ....	11	8	11	16.9	9
Pearl:					
Edinburg, Miss. ....	20	7	14	24.6	10
Jackson, Miss. ....	18	Mar. 20	30	32.1	9, 14
Monticello, Miss. ....	15	1	28	{ 27.6 23.6	8 21
Columbia, Miss. ....	17	3	29	{ 26.5 23.2	9 23
Pearl River, La. ....	12	Mar. 27	(2)	17.0	13
MISSISSIPPI SYSTEM					
Upper Mississippi Basin					
Illinois:					
Morris, Ill. ....	13	9	13	14.5	11
Peru, Ill. ....	17	7	19	19.5	12
Peoria, Ill. ....	18	9	23	20.4	15
Havana, Ill. ....	14	Mar. 24	30	19.2	15, 16
Beardstown, Ill. ....	14	Mar. 24	May 4	21.8	15, 16
Bourbeuse:					
Union, Mo. ....	12	1	2	12.5	1
Mississippi:					
Quincy, Ill. ....	14	8	8	14.0	8
Hannibal, Mo. ....	13	7	11	14.0	9
Grafton, Ill. ....	18	10	13	18.6	11
Ohio Basin					
Walhonding: Walhonding, Ohio. ....	8	8	11	12.7	9
Tuscarawas: Coshocton, Ohio. ....	11	8	13	13.7	10
Muskingum: Lock No. 7, McConnells-ville, Ohio. ....	22	9	10	22.6	9
Orientangy: Delaware, Ohio. ....	9	9	9	9.0	9
Scioto:					
La Rue, Ohio. ....	11	7	10	13.6	8
Prospect, Ohio. ....	10	8	11	12.4	10
Circleville, Ohio. ....	14	7	11	17.6	9
Chillicothe, Ohio. ....	16	8	11	19.6	10
Stillwater: Pleasant Hill, Ohio. ....	13	7	7	13.8	7
Mad: Springfield, Ohio. ....	11	7	8	13.0	8
Miami: Middletown, Ohio. ....	15	8	8	15.0	8
West Fork of White:					
Anderson, Ind. ....	10	Mar. 30	10	13.8	Mar. 31
Noblesville, Ind. ....	14	Mar. 31	2	17.3	1
Indianapolis, Ind. ....	12	Mar. 31	2	15.0	9
Elliston, Ind. ....	18	Mar. 25	15	27.4	10
Edwardsport, Ind. ....	12	Mar. 6	19	{ 19.4 19.2	5 13
East Fork of White: Seymour, Ind. ....	14	{ 1 8	3 12	14.8 16.4	2 9, 10
White:					
Petersburg, Ind. ....	16	Mar. 14	18	{ 23.1 22.6	7 14, 15
Hazleton, Ind. ....	16	Mar. 10	20	{ 24.3 23.7	8 15
Wabash:					
Bluffton, Ind. ....	10	Mar. 31	3	11.7	1
Wabash, Ind. ....	12	Mar. 31	4	12.5	10
La Fayette, Ind. ....	11	Mar. 31	5	19.6	1
Covington, Ind. ....	16	Mar. 31	16	{ 20.0 21.8 23.4	2 10 4
Terre Haute, Ind. ....	14	Mar. 30	19	{ 25.7 19.9 21.7	11 1 13
Vincennes, Ind. ....	14	Mar. 19	22	{ 19.6 21.6	5 9, 16, 17
Mount Carmel, Ill. ....	19	Mar. 19	21	23.8	18
New Harmony, Ind. ....	15	Mar. 20	23	19.3	9, 10, 17, 18
Hiwassee: Charleston, Tenn. ....	22	9	9	23.8	9
Tennessee:					
Bridgeport, Ala. ....	18	10	10	18.0	10
Widows Bar Lock, Tenn., upper gage. ....	17	9	11	19.0	10
Florence, Ala. ....	18	8	14	20.7	12
Ohio:					
Mount Vernon, Ind. ....	35	16	19	35.5	18
Dam No. 49, Uniontown, Ky. ....	37	{ 2 16	4 20	37.2 38.4	3 18
Shawneetown, Ill. ....	33	12	23	38.4	18
Dam No. 50, Fords Ferry, Ky. ....	34	11	23	40.1	18, 19

Table of flood stages during April 1938—Continued

[All dates in April unless otherwise specified]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued					
Ohio—Continued.	<i>Feet</i>			<i>Feet</i>	
Dam No. 52, Brookport, Ill. ....	37	{ Mar. 31	5	38.3	
		12	22	39.2	16
Dam No. 53, Grand Chain, Ill. ....	42	{ Mar. 30	7	44.9	3
		10	23	45.7	16
Cairo, Ill. ....	40	Mar. 30	24	{ 44.7	3.4
				45.1	16
White Basin					
Black: Black Rock, Ark. ....	14	Mar. 29	26	{ 25.1	Mar. 31
				22.9	17
White:					
Batesville, Ark. ....	23	{ Mar. 29	2	21.1	Mar. 30
		17	17	23.0	17
Newport, Ark. ....	26	{ Mar. 31	6	29.5	2
		18	18	26.2	18
Georgetown, Ark. ....	21	Mar. 31	( <sup>1</sup> )	{ 25.8	6
				24.8	20-22
Clarendon, Ark. ....	26	3	( <sup>2</sup> )	{ 30.6	11
				29.2	20-22
Arkansas Basin					
North Canadian: Yukon, Okla. ....	8	28	( <sup>3</sup> )	10.2	29
Poteau: Poteau, Okla. ....	21	{ 8	11	24.6	10
		17	18	23.2	18
Petit Jean: Danville, Ark. ....	20	{ 10	10	20.6	10
		16	19	23.0	17
Arkansas:					
Dardanelle, Ark. ....	22	Mar. 31	2	22.8	1
Morrilton, Ark. ....	20	Mar. 31	3	21.2	1
Red Basin					
Little Missouri: Boughton, Ark. ....	20	{ 2	2	20.0	2
		18	18	20.3	18
Ouachita:					
Arkadelphia, Ark. ....	17	{ 8	9	17.5	8
		16	18	20.2	17
Camden, Ark. ....	26	Mar. 31	25	{ 40.1	5
				31.4	21
Monroe, La. ....	40	16	( <sup>3</sup> )	41.4	23-29
Black: Jonesville, La. ....	50	7	( <sup>2</sup> )	52.3	20-27
		Mar. 31	6	27.0	2
Little: Whitecliffs, Ark. ....	25	{ 11	11	25.0	11
		18	20	26.0	19
Sulphur:					
Ringo Crossing, Tex. ....	20	{ Mar. 27	2	26.1	Mar. 29
		7	12	25.8	8
		15	21	27.7	16
Naples, Tex. ....	22	Mar. 30	27	{ 28.3	2
				28.5	20
Red:					
Index, Ark. ....	25	Mar. 31	4	27.6	2
Fulton, Ark. ....	25	Mar. 31	12	31.4	4
Grand Ecore, La. ....	33	7	17	34.6	12, 13
Alexandria, La. ....	32	4	May 1	38.2	15
Lower Mississippi Basin					
Big Lake Outlet: Manila, Ark. ....	10	Jan. 26	25	16.1	7, 8
St. Francis:					
Fisk, Mo. ....	20	{ Mar. 30	6	24.1	2
		10	12	21.1	11
		18	20	21.9	19

Table of flood stages during April 1938—Continued

[All dates in April unless otherwise specified]

River and station	Flood stage	Above flood stages—Dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Lower Mississippi Basin—Continued					
St. Francis—Continued.	<i>Feet</i>			<i>Feet</i>	
St. Francis, Ark.....	18	Mar. 31	4 25	{ 23.4	4
Tallahatchie: Swan Lake, Miss.....	26	Jan. 28	( <sup>3</sup> )	{ 18.5	23, 24
Yazoo: Yazoo City, Miss.....	29	{ 8	( <sup>3</sup> ) 8	{ 31.0	12
		{ 10		{ 29.1	8
Mississippi:					
New Madrid, Mo.....	34	{ 2	7	35.0	5
Greenville, Miss.....	36	{ 13	20	35.2	17
Angola, La.....	45	{ 20	28	36.4	24-26
Baton Rouge, La.....	35	{ 17	( <sup>3</sup> )	46.6	{ 29
Plaquemine, La.....	31	{ 16	( <sup>3</sup> )	37.0	{ May 1
Donaldsonville, La.....	28	{ 17	( <sup>3</sup> )	32.9	{ 30
Reserve, La.....	22	{ 20	( <sup>3</sup> )	28.9	{ May 1
		{ 27	( <sup>3</sup> )	22.1	{ 30
Atchafalaya Basin					
Atchafalaya:					
Simmesport, La.....	41	25	May 3	41.2	{ 27
Mellville, La.....	37	17	( <sup>3</sup> )	38.5	{ May 1
Atchafalaya, La.....	25	27	( <sup>3</sup> )	25.0	{ 27
					{ May 2
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Logansport, La.....	25	20	( <sup>3</sup> )	26.9	23
Bon Wier, Tex.....	21	8	14	22.2	9
Neches: Rockland, Tex.....	22	10	14	22.8	12
Elm Fork: Carrollton, Tex.....	6	Mar. 28	2	12.4	Mar. 29
Trinity:					
Dallas, Tex.....	28	Mar. 28	4	38.8	Mar. 30
Trinidad, Tex.....	28	Mar. 29	25	41.8	5
Long Lake, Tex.....	40	2	26	44.4	20
Liberty, Tex.....	24	9	( <sup>3</sup> )	26.5	30
Colorado:					
Columbus, Tex.....	24	26	26	26.0	26
Wharton, Tex.....	26	28	28	27.1	28
Guadalupe:					
Gonzales, Tex.....	20	25	29	30.5	26
Victoria, Tex.....	21	25	3		
GULF OF CALIFORNIA DRAINAGE					
Colorado Basin					
North Fork of Gunnison: Paonia, Colo.....	9	{ 26	26	9.0	26
		{ 30	30	9.0	30
Gunnison: Delta, Colo.....	9	23	( <sup>3</sup> )	10.6	26
PACIFIC SLOPE DRAINAGE					
Columbia Basin					
Clearwater: Kamiah, Idaho.....	12	18	20	14.5	19
Santiam: Jefferson, Oreg.....	10	18	18	10.2	18

1 Approximate.

2 Fell slightly below flood stage on the 1st.

3 Continued at end of month.

4 Fell slightly below flood stage on 20th and 21st.

5 Fell below flood stage on 28th.

## WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNEHILL in charge]

## NORTH ATLANTIC OCEAN, APRIL 1938

By H. C. HUNTER

*Atmospheric pressure.*—Most of the North Atlantic regions had pressure higher than normal. The excess was remarkably large near the British Isles, being one-half inch at Valencia, Ireland, where even the lowest reading of the month was 0.14 inch above the month's normal. Throughout almost all American waters there was a moderate excess of pressure.

A small portion of the northwestern North Atlantic had average pressure somewhat less than normal; at Julianehaab, Greenland, there were considerable fluctuations,

but for only a short period just before the middle of the month did the pressure remain considerably above normal for as long as three successive days. The southeastern North Atlantic likewise averaged below normal for pressure. Horta, in the Azores, usually near the center of the North Atlantic HIGH, averaged one-fifth of an inch below normal, the chief periods when pressure there rose to near normal being the first 5 days and the final week of the month.

In available vessel reports the extremes of pressure noted are 30.74 and 28.75 inches. The higher reading was reported by the American steamship *Cranford* near the western end of the English Channel just before noon of